

Sustainable Industrial Networking (SINET) *Newsletter*

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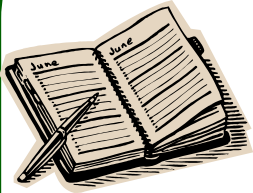
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Editorial



It is increasingly becoming evident that business and industry's current patterns of consumption and production are not sustainable. The environmental problems created by industry stem primarily from the use of a strictly linear production process of extracting raw materials and fossil energy, processing the material and energy, and dumping the waste back into natural systems. In response to this impending crisis, an innovative new theory termed Sustainable Industrial Network (SINET) is emerging to guide industries towards sustainable production. SINET aims to incorporate the cyclical patterns of ecosystems into designs for industrial production processes that will work in unison with natural systems.

The aim of sustainable industrial network and its application on micro regional environmental planning is to interpret and adapt an understanding of the natural system and apply it to the design of the man-made system, in order to achieve a pattern of industrialization that is not only more efficient, but which is intrinsically adjusted to the tolerances and characteristics of the natural system. An industrial system of this type will have built-in insurance against environmental surprises, because their underlying causes will have been eliminated at the design stage.

Through this newsletter, the SINET secretariat shall attempt to appraise the readers of the various issues facing the Indian industries with sustainability as the bottom-line. The readers shall also be informed of the various events taking place in India in the field of sustainability and industrial networking, so that they can also become a part of the relevant network thus ensuring greater outreach of this initiative.

Understanding SINET

Several **industrial networks** have evolved around a specific industry activity. This industry activity greatly influences the environmental and socio-economic dimensions in the surroundings of its industrial units. Thus it is considered as the **key economic activity** of the **micro-region**. Due to self-evolution of these industry-networks they have an in-built sustainability dimension in terms of interdependency, compatibility, synergy of operations, and financial, energy & material flows between the industrial and non industrial

operations of the network. If these interactions are well managed and made more effective and efficient, the pollution from the industry network can drastically be reduced and the economic competitiveness of the industry network can be greatly enhanced.

* Industry network refers to cluster of industries and other services that are interdependent

** Key economic activity is that activity around which other activities have evolved Key activity is

also the main economic activity of the region in question

*** Micro-region is the area influenced by the key activity. The size of the micro-region may vary depending upon the type of key activity. It could surround a diameter of 50 to 200 Km

- ✦ Interaction between industrial, natural and social systems in the micro region
- ✦ Balancing industrial input and output to the carrying capacity of natural systems
- ✦ Maximizing social benefits and minimizing environmental footprints of the industrial activity in the micro region
- ✦ Improving the efficiency of industrial processes and optimized transport requirements
- ✦ Dematerialization of industrial output, via by enhanced byproduct and waste utilization
- ✦ Development of renewable energy

supplies for industrial production
Supportive policies to promote micro regional sustainability through industrial networking

Sustainable Industrial Networks can foster not only networking in terms of materials and transportation but also collaboration can be achieved with respect to energy, human resources, marketing, information/communication systems, quality of life, etc. From the economic point of view, the decrease in the cost of raw materials and of waste disposal is definitely going to be the most significant incentive for the industries that in turn would lessen the burden on the environment. Developing Industrial Environmental Clusters is an environmentally sound way of maintaining healthy connections between industries, environment, and the community.

Indian Case Study

SHRI RAJARAMBAPU Cooperative Sugar Mill Ltd (RBCSM)

This sugar factory is situated at Village: Sakharale, Taluka: Walwa and District: Sangli



This co-operative sugar factory has an enormous importance for the surrounding community. This sugar complex is a multi-product complex that has evolved synergistically around sugarcane. Sugarcane is one of those agricultural commodities, which fixes maximum of solar energy per acre, releasing the same for human benefits in

many forms. Therefore, the potential of a sugar industrial network should be harnessed fully. This has been achieved at some extent by RBCSM

Harvesting is done either by hand or by a machine. Sugarcane cutting is a hard and dirty job but provides employment to people in areas where jobs are scarce.

Indian Case Study

The harvested sugar cane should be crushed within 24 hrs. to get a good recovery of sugar, therefore every sugar mill has provided transportation and harvesting facility to the farmers on nominal charges, which ultimately provides secondary employment to the nearby community.

Almost all sugar mills depend on large number of independent farmers for their supplies of sugar cane. If the yield per hectare is improved, the benefit goes to the growers while if the cane is rich enough in sugar content; it becomes profitable to the mills. Therefore cane growing and milling are essentially a joint enterprise what helps the grower help the miller and vice-versa.

Once the weighing has being carried out, company officials will note down the entry of the crop weight, name of crop owner and the vehicle number, for further procedure. The payment of the crop will directly be deposited in the account of each farmer in the co-operative banks of the society. After sugar production, the sugar produced is then packed and stored. The transportation of sugar from mill to market is mostly carried out by road. The area is well connected with most of the metropolitan cities of the India. The waste generated from the mill will be sent to the by-product based industry like molasses, which will then be sent to the distillery industry.

Bagasse is used as a fuel in boilers or in paper mill, press mud and spent wash is used as a filler material for bio-composting the sugar produced is then packaged and stored. The transportation of sugar from mill to market is mostly carried out by road. The area is well connected with most of the metropolitan cities of the India industry.



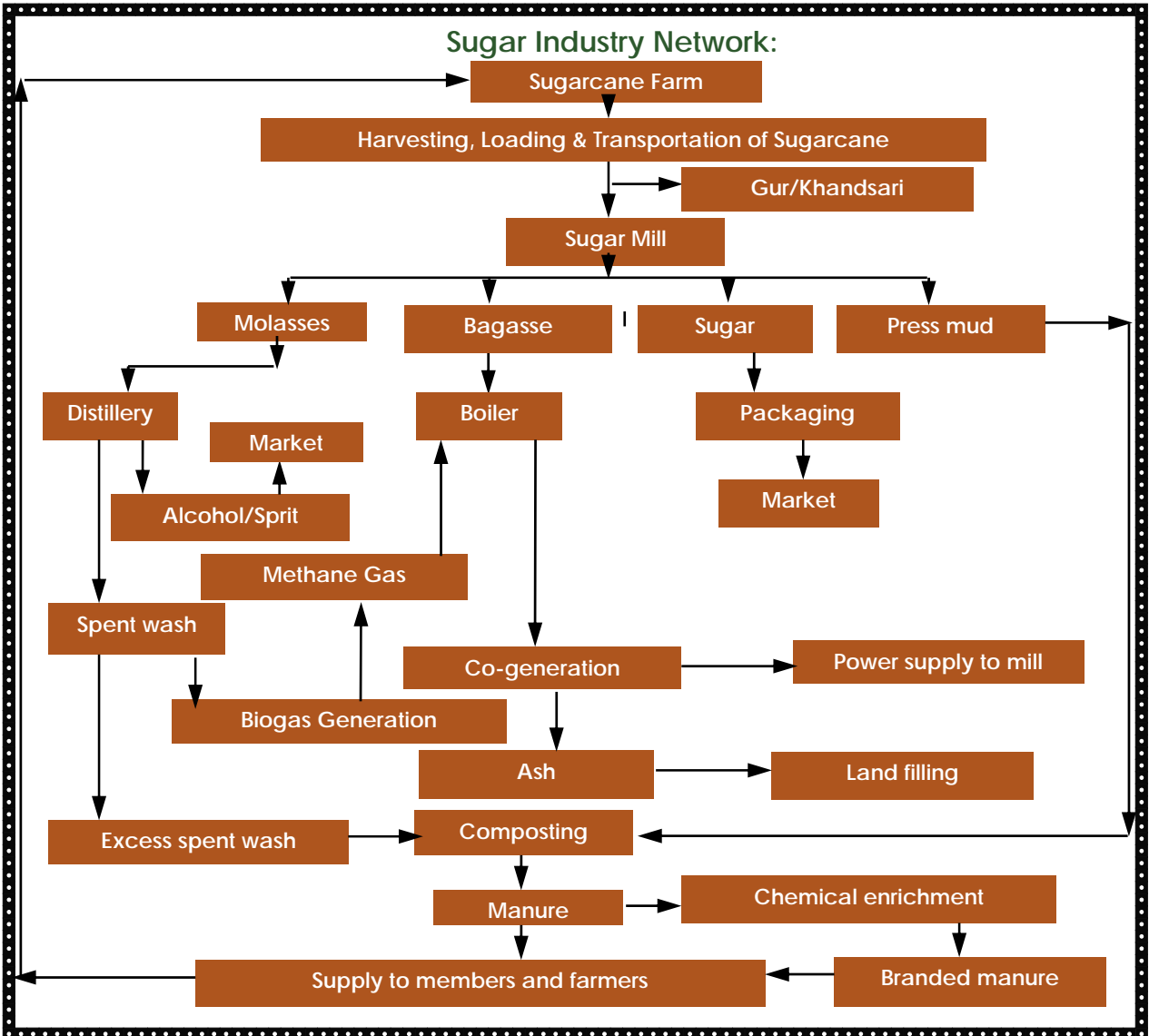
On the other hand alcohol is used to produce various industrial chemicals and supplied to the other industry.

Compost manure will be sold to the farmers and to the members of the society at nominal charges. Bagasse is burnt as fuel in boilers to create



electricity that powers the mill to process sugar from cane juice and alcohol in distillery Anaerobic digestion is used to process left-over effluent and to clean the waste process water which makes up 80% of the effluent to produce biogas, food grade CO₂ and fertilizers. Cleaned water is recycled for on-site use, sent back to the river or used to irrigate the cane-farms. Thus, the network revolves around the sugarcane farm and plays an important role in the rural economy of the area.

Sugar Industry Network



European cases as examples of models of sustainable industrial cooperation

Walther Van Aerschot

Introduction

One of the main objectives of the SINET study is to identify examples of sustainable industry networks in Europe and to learn from the experiences acquired in those cases.

There are many types of sustainable industrial networks and many ways to categorize them.

For the purpose of our study we selected, from the great variety of models that can be found in the professional literature, four types of sustainable networking, each type describing one model or one way of sustainable industrial cooperation. Each model is illustrated by a case we identified in Europe. The four cases demonstrate that the concept of sustainable industrial cooperation is workable and generates considerable economic, environmental and social benefits.

The four European models and cases of sustainable industrial cooperation we studied in the SINET project are:

- The sustainable revitalisation model – Landskrona (Sweden)
- The park management model – Belgium and the Netherlands
- The industrial district model – Santa Croce sull'Arno (Italy)
- The industrial symbiosis model – Kalundborg (Denmark)

Models of sustainable industrial cooperation

The Sustainable Revitalisation Model

Existing industrial parks can be made sustainable or 'sustainably revitalised' by systematically identifying potential synergies among companies and by forming a network of collaborating organisations. This approach simultaneously offers environmental, social and business profits. Possible areas for cooperation include the exchange of waste, by-product and energy streams, sharing utilities and infrastructure, and exchanging human and managerial resources.

The case of Landskrona in Sweden is an interesting example of an initiative aiming at revitalising an existing industrial area.

The Park Management Model

'Park management' initiates cooperation between companies situated on the same site in order to strive for the development of a sustainable industrial site. This sustainability can result in an increase of the economic return and of the business competitiveness linked to a reduction of the environmental impact, a more intensive use of space and better labour conditions. At the same time the improvement of the individual environmental performances of the participating companies is intended.

The case selected for this study is a project situated both in Belgium and the Netherlands.

The Industrial Cluster/district Model

The leather district of Santa Croce sull'Arno in Italy is an excellent example of a SME cluster. It is one of the most important areas for the leather industry in Italy and the world, and the leather sector is the main component of the local productive system and economy.

When, in the seventies of the past century, the Italian government decided to introduce solid and fundamental regulations for environmental protection, the Tuscan tanning industry decided to establish a policy of 'sustainable development'. The tanners understood that the only way to improve the situation was to cooperate and to agree a common policy with the public institutions.

The Industrial Symbiosis Model

The term 'symbiosis' is derived from nature and points to the existence and collaboration of different organisms in such a way that each individual organism benefits from that coexistence.

'Industrial symbiosis' concerns the collaboration between different industries for mutual and environmental benefit.

In Kalundborg (Denmark), the industrial cooperation takes place between a number of companies and the municipality, all exploiting each other's residual or by-products mutually.

The by-products (energy, waste, process water) of one company are exchanged into another company, so that a minimum of waste remains. This results in an optimum use of energy and water and in a substantial reduction of emissions. The economic and environmental advantages that such a working method offers are considerable, so that across the board participating partners all enjoy a win-win relationship.

Lessons learned

Sustainable cooperation between companies is a workable concept with positive economic and environmental results.

The European cases prove that sustainable industrial networking, done by integrating industrial and ecological excellence, can create economic opportunities and lead to improved environmental performance.

The experiences acquired in the European examples can be inspiring for application in other industrial areas.

Event

First Pre-conference Workshop on

Sustainable Industrial Network and its Applications on Micro Regional Environmental Planning (SINET) 24th November' 2006

Venue: Magnolia Hall, India Habitat Centre, Lodhi Road, New Delhi, India

Agenda	
<u>Session I</u>	
10:00 – 10:10 Hrs:	Inauguration and Welcome Address by Mr. N. R. Krishnan, (Former Secretary, Ministry of Environment and Forest), Senior Advisor, NetPEM Public Trust.
10:10 – 10:30 Hrs:	Introduction to SINET by Mr. K. P. Nyati, Principal Advisor, CII CESD
10:30 – 10:50 Hrs:	Concept of Sustainable Industrial Network (SINET) – Mr. Shisher Kumra, Director, EU Coordination, International Council of Swedish Industry (NIR)
10:50 – 11:30 Hrs:	Sustainable Industrial Network - Case Studies from EU – Mr. Walther Van Aerschot, Project Leader, VITO, Belgium
11:30 – 12:15 Hrs:	Sustainable Industrial Network - Case Studies from India – Dr. Aditi Haldar, CII & Dr. Rashmi Naidu, NetPEM
12:15 – 13:00 Hrs: LUNCH	
<u>SESSION I (Cont.)</u>	
13:00 – 13:15 Hrs:	Cluster development with special emphasis on sugar industry – Dr. S. R. K. Reddy, Core Faculty, National Resource Centre for Cluster Development, Hyderabad
13:15 – 13:30 Hrs:	Overview of Sugar Industry Network and a case study from India – Mr. Anand Deshmukh, Field Researcher, NetPEM
13:30 – 13:45 Hrs:	SINET and its impact on the social, economical and environmental fabric of the micro-region – Mr. Shisher Kumra, Director, EU Coordination, International Council of Swedish Industry (NIR)
<u>SESSION II</u>	
Chaired by Mr. N.R. Krishnan (Former Secretary, Ministry of Environment and Forests) Senior Advisor, NetPEM Public Trust	
13:45 – 14:45 Hrs:	Open Discussion on Sustainable Sugar Industry Network (Options and Scope)
14:45 – 15:00 Hrs:	Conclusion
15:00 – 15:30 Hrs:	Tea and Coffee

Updates

Series of three pre-conference workshops on

“Identifying Synergies for Sustainable Industrial Networking in the Textile and the Leather and Medical Health Tourism Sector”

April 2007

Important Web link

www.sinetinfo.org